

CLAIMS:

1. A submerged intake filter assembly comprising:
a cylindrical screen having a screen longitudinal axis, a first end, and a second end,
5 the cylindrical screen defining an interior between the first end and the second end;
a primary flow modifier pipe having a diameter less than that of the cylindrical
screen and a primary longitudinal axis parallel to the screen longitudinal axis, the primary
flow modifier pipe extending into the interior of the cylindrical screen through the first end
of the cylindrical screen, thereby forming an annular space between the primary flow
10 modifier pipe and the cylindrical screen; and
a secondary flow modifier pipe positioned in the annular space and extending into
the interior of the cylindrical screen.
2. The submerged intake filter assembly of claim 1, wherein the secondary flow
15 modifier pipe defines a secondary longitudinal axis that is at an angle to the primary
longitudinal axis.
3. The submerged intake filter assembly of claim 2, further comprising a second
secondary flow modifier pipe positioned in the annular space and extending into the
20 interior of the cylindrical screen, the second secondary flow modifier pipe extending into
the screen interior a different distance from the secondary flow modifier pipe.
4. The submerged intake filter assembly of claim 1, wherein the primary flow
modifier pipe and the cylindrical screen are eccentric at the first end.
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5. The submerged intake filter assembly of claim 4, wherein the secondary flow
modifier pipe defines a secondary longitudinal axis that is at an angle to the primary
longitudinal axis.
- 30 6. The submerged intake filter assembly of claim 1, wherein the primary flow
modifier pipe includes a primary inlet end and the secondary flow modifier pipe includes a
secondary inlet end and the secondary inlet end extends further into the interior of the
cylindrical screen than does the primary inlet end.

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7. The submerged intake filter assembly of claim 6, further comprising a second secondary flow modifier pipe positioned in the annular space and extending into the interior of the cylindrical screen, the second secondary flow modifier pipe extending into the screen interior a different distance from the secondary flow modifier pipe.

8. The submerged intake filter assembly of claim 1, wherein the primary flow modifier pipe includes a primary inlet end and the secondary flow modifier pipe includes a secondary inlet end and the primary inlet end extends further into the interior of the cylindrical screen than does the secondary inlet end.

9. The submerged intake filter assembly of claim 8, further comprising a second secondary flow modifier pipe positioned in the annular space and extending into the interior of the cylindrical screen, the second secondary flow modifier pipe extending into the screen interior a different distance from the secondary flow modifier pipe.

10. The submerged intake filter assembly of claim 1, further comprising a second secondary flow modifier pipe having a second secondary longitudinal axis positioned in the annular space and extending into the interior of the cylindrical screen.

11. The submerged intake filter assembly of claim 10, wherein the secondary flow modifier pipe defines a secondary longitudinal axis, the secondary longitudinal axis and the second secondary longitudinal axis being positioned different distances from the primary longitudinal axis.

12. A submerged intake filter assembly comprising:
a cylindrical screen having a screen longitudinal axis, a first end and a second end, the cylindrical screen defining an interior between the first end and the second end;
a plurality of flow modifier pipes, each having a diameter less than that of the cylindrical screen, each having a longitudinal axis parallel to and spaced-apart from the screen longitudinal axis, and each extending into the interior of the cylindrical screen through the first end of the cylindrical screen.

13. The submerged intake filter assembly of claim 12, wherein the plurality of secondary flow modifier pipes each defines a secondary longitudinal axis that is at an angle to the primary longitudinal axis of the screen.
14. The submerged intake filter assembly of claim 13, wherein the plurality of secondary flow modifier pipes each extends different distance into the screen interior.
15. A submerged intake filter assembly, comprising:
a cylindrical screen having a screen longitudinal axis, a first end, and a second end;
the cylindrical screen defining an interior between the first end and the second end;
a primary flow modifier pipe having a primary longitudinal axis and extending into the interior of the cylindrical screen through the first end of the cylindrical screen, the screen longitudinal axis and the primary longitudinal axis being collinear and the cylindrical screen having a greater diameter than the primary flow modifier pipe, thereby creating an annular space between the primary flow modifier pipe and the first end of the screen; and
a secondary flow modifier pipe positioned in the annular space and extending into the interior of the cylindrical screen.
16. The submerged intake filter assembly of claim 15, wherein the primary flow modifier pipe includes a primary inlet end and the secondary flow modifier pipe includes a secondary inlet end and the secondary inlet end extends further into the interior of the cylindrical screen than does the primary inlet end.
17. The submerged intake filter assembly of claim 16, wherein the secondary flow modifier pipe includes a secondary longitudinal axis that is at an angle to the screen longitudinal axis.
18. The submerged intake filter assembly of claim 15, wherein the primary flow modifier pipe includes a primary inlet end and the secondary flow modifier pipe includes a secondary inlet end and the primary flow modifier pipe extends further into the interior of the cylindrical screen than does the secondary inlet end.

19. The submerged intake filter assembly of claim 18, wherein the secondary flow modifier pipe includes a secondary longitudinal axis that is at an angle to the screen longitudinal axis.

5 20. A submerged intake filter assembly, comprising:

an intake pipe defining an intake interior and having a primary longitudinal axis and an open end providing a passageway from outside the intake pipe to the intake interior;

10 a cylindrical screen substantially enclosing the open end of the intake pipe and defining a screen interior;

a plurality of flow modifying pipes, each flow modifying pipe having a secondary longitudinal axis, the secondary longitudinal axes all positioned equidistant from the primary longitudinal axis and substantially parallel to the primary longitudinal axis, each flow modifying pipe extending into the intake interior, through the open end of the intake pipe, and into the screen interior.

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21. The intake filter assembly of claim 20, wherein at least two of the plurality of flow modifying pipes extend different distances into the screen interior.

20 22. A submerged intake filter assembly, comprising:

a round cylindrical screen having a first end, a second end, and an inside surface defining an interior between the first end and the second end;

25 a round inlet pipe having an outer surface and an open end providing a passageway from outside the inlet pipe to inside the inlet pipe, the inlet pipe extending into the interior of the cylindrical screen through the first end of the cylindrical screen to create an annular space between the outer surface of the inlet pipe and the first end of the cylindrical screen;

an end plate coupled to the cylindrical screen at the second end of the cylindrical screen and substantially closing the second end of the cylindrical screen; and

30 a base plate coupled to the inlet pipe and the cylindrical screen at the first end of the cylindrical screen and substantially closing the annular space between the outer surface of the inlet pipe and the first end of the cylindrical screen,

wherein the inlet pipe defines a first longitudinal central axis and the cylindrical screen defines a second longitudinal central axis and the first longitudinal central axis is spaced-apart and parallel to the second longitudinal central axis.

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32. The submerged intake filter assembly of claim 30, wherein the secondary inlet pipe extends into the interior of the cylindrical screen at an angle to the first longitudinal axis.

33. The submerged intake filter assembly of claim 29, further comprising a plurality of
5 secondary inlet pipes, each positioned in the annular space and extending into the interior of the cylindrical screen through the first end of the cylindrical screen.

34. The submerged intake filter assembly of claim 33, wherein at least two of the plurality of secondary inlet pipes extend different distances into the interior of the
10 cylindrical screen.

35. The submerged intake filter assembly of claim 33, wherein the plurality of secondary inlet pipes extend into the interior of the cylindrical screen at an angle to the first longitudinal axis.
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36. A submerged intake filter assembly comprising:
a cylindrical screen having a screen longitudinal axis, a first end and a second end, the cylindrical screen defining an interior between the first end and the second end;
a primary flow modifier pipe having a diameter less than that of the cylindrical
20 screen and a primary longitudinal axis parallel to the screen longitudinal axis, the primary flow modifier pipe extending into the interior of the cylindrical screen through the first end of the cylindrical screen, thereby forming an annular space between the primary flow modifier pipe and the first end of the screen; and
a secondary flow modifier pipe having an interior completely positioned in the
25 annular space and extending into the interior of the cylindrical screen.

37. The submerged intake filter assembly of claim 36, wherein the secondary flow modifier pipe defines a secondary longitudinal axis that is at an angle to the primary longitudinal axis.
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38. The submerged intake filter assembly of claim 36, wherein the primary flow modifier pipe and the cylindrical screen are eccentric at the first end.

39. The submerged intake filter assembly of claim 36, wherein the primary flow modifier pipe includes a primary inlet end and the secondary flow modifier pipe includes a secondary inlet end and the secondary inlet end extends further into the interior of the cylindrical screen than does the primary inlet end.

40. The submerged intake filter assembly of claim 39, further comprising a second secondary flow modifier pipe positioned in the annular space and extending into the interior of the cylindrical screen, the second secondary flow modifier pipe extending into the screen interior a different distance from the secondary flow modifier pipe.

41. The submerged intake filter assembly of claim 36, wherein the primary flow modifier pipe includes a primary inlet end and the secondary flow modifier pipe includes a secondary inlet end and the primary inlet end extends further into the interior of the cylindrical screen than does the secondary inlet end.

42. The submerged intake filter assembly of claim 41, further comprising a second secondary flow modifier pipe positioned in the annular space and extending into the interior of the cylindrical screen, the second secondary flow modifier pipe extending into the screen interior a different distance from the secondary flow modifier pipe.

43. The submerged intake filter assembly of claim 36, wherein the secondary flow modifier pipe defines a secondary longitudinal axis that is at an angle to the primary longitudinal axis.

44. The submerged intake filter assembly of claim 43, further comprising a second secondary flow modifier pipe positioned in the annular space and extending into the interior of the cylindrical screen, the second secondary flow modifier pipe extending into the screen interior a different distance from the secondary flow modifier pipe.

45. The submerged intake filter assembly of claim 36, further comprising a second secondary flow modifier pipe having a second secondary longitudinal axis and an interior completely positioned in the annular space and extending into the interior of the cylindrical screen.

46. The submerged intake filter assembly of claim 45, wherein the secondary flow modifier pipe defines a secondary longitudinal axis, the secondary longitudinal axis and the second secondary longitudinal axis being positioned different distances from the primary longitudinal axis.

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